



**WARNING**  
TO PREVENT ELECTRICAL SHOCK OR FIRE HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.  
BEFORE USING THIS APPLIANCE, READ BACK COVER FOR FURTHER WARNINGS.

# RHYTHM MASTER™



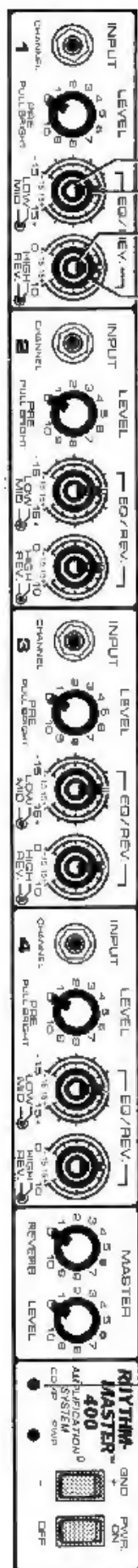
## 400

## OPERATING GUIDE

Congratulations on your purchase of the Peavey Rhythm Master™ 400. This amplifier features four totally independent channels with a 210 watt power amp, DDT™ compression and an efficient 4 ohm Black Widow®/Super Structure™ 15" speaker combined in a solid 3/4" thick wood cabinet covered with 34 oz. heavy-duty tolex.

The preamp has four separate channels, each of which features a high gain input, pre gain with pull bright, three-band EQ (low, mid, high) and reverb send. Channels 1 and 2 also feature pre EQ send and return with allows effects devices to be interfaced before the equalization so maximum coloration may be achieved. The master reverb control affects all four channels and sets the amount of reverb return or overall reverb level. The master level control also affects all four channels by setting the overall gain of the amplifier.

This system has been designed for those who play more than one instrument and need the portability afforded by a single unit package. The flexibility achieved with the wide range EQ, premium three-spring reverb unit and pre EQ patch, combined with our rugged 210 watt power amp, DDT™ compression and premium 15" Black Widow® speaker should fill a need which has long been unfulfilled.



#### CHANNEL INPUTS

Each channel of the Rhythm Master™ 400 has a single high impedance input (approximately 220K ohms) which features extremely wide dynamic range.

#### CHANNEL PRE GAIN CONTROLS

Each channel features a pre gain control allowing individual volume adjustment for each instrument.

The pre gain control also features an integral "pull switch" which adds a significant **boost** (6 dB) to the high frequencies when activated. This high frequency boost gives a nice "edge" to clean playing styles. The boost is activated by "pulling out" on the pre gain control and defeated by simply "pushing" the knob inward.

#### CHANNEL EQUALIZATION

Each channel of the Rhythm Master™ 400 employs a system of concentric (stacked) potentiometers consisting of three-band active equalization and reverb send controls. In each channel there are two sets of concentric potentiometers, each serving a dual purpose. The inner ring of the first set is the low frequency control while the outer knob is the mid control. Likewise, the second set of concentric pots are the high frequency control (inner knob) and reverb send control (outer ring).

#### LOW FREQUENCY CONTROL

The low frequency control is capable of 15 dB boost or cut at 80 Hz. The action of this equalization control is conventional and should present no problem in operation. Boost is obtained in the right-hand (clockwise) position, while cut is obtained in the left-hand (counterclockwise) position. The vertical (12 o'clock) position yields a flat (no boost or cut) response and is the position from which all tonal balancing should be started!

**NOTE:** Overboosting of the low control **may** cause unwanted distortion at the loudspeaker and/or engaging the DDT™ circuit on a constant basis. This problem can be corrected by setting the control flat (placing the control at zero) or setting the control in the minus (cut) positions.

#### MID FREQUENCY CONTROL

The mid frequency control is capable of 15 dB boost or cut at 600 Hz with a peak/notch type of filter response. This middle EQ circuit enables control over the vital mid-range frequencies. The action of this middle filter is somewhat different than the high and low EQ since it is of the "peak" and "notch" type. This kind of filter response is necessary to avoid undue interaction with the high and low equalizers.

**CAUTION MUST BE EXERCISED IN ORDER TO AVOID OVERBOOSTING OR OVERCUTTING THE MID-RANGE.** Experience has proven that, for most applications, a very slight mid-range cut tends to produce a "tight" and well-defined sound. Generally, large amounts of mid-range boost are extremely unpleasant and probably will never be used except for special effects.

#### HIGH FREQUENCY CONTROL

The high frequency control is capable of 15 dB boost or cut at 8 KHz. The boost or cut action of this control is very similar to the low equalizer with the exception of its high frequency effect. Boost is obtained in the right of the center position while cut is obtained in the left of the center position. Flat response is obtained in the center (12 o'clock) position.

#### REVERB SEND CONTROL

The send control gets the signal level, from each channel, which is routed through the internal reverb unit. **CLOCKWISE ROTATION INCREASES THE AMOUNT OF SEND SIGNAL. NOTE: EXCESSIVE SEND LEVELS CAN OVERLOAD THE REVERB DRIVE CIRCUITRY AND CAN CAUSE REVERB DISTORTION.**

#### MASTER REVERB CONTROL

The master reverb control determines the desired amount of reverberation from the internal reverb system. Clockwise rotation increases the reverb effect and counterclockwise decreases the effect.

#### MASTER LEVEL CONTROL

In normal use, the master level control should be operated **above** the 12 o'clock or number 5 position. To obtain maximum power reserve and headroom, rotate the control fully clockwise to number 10. **NOTE:** With the post gain control at its number 10 position, the pre gain control should not be operated above its 12 o'clock or number 5 position to avoid unwanted distortion. Also, while using maximum power and extreme high end boost in the equalization section you may find it necessary to back down (cut) the post gain control to approximately its number 8 position to avoid any unwanted residual noise.

#### DDT™ COMPRESSION

The Rhythm Master™ 400 utilizes our patented DDT™ (Distortion Detection Technique) compression circuit to effectively eliminate the possibility of distortion (square waves) in the power amps/loudspeaker.

The DDT™ LED will sometimes illuminate when the unit is first turned on and this should be considered normal. The DDT™ LED will also occasionally illuminate to indicate the DDT™ circuit is automatically engaging to prevent distortion. **NOTE:** If the DDT™ LED *remains* constantly lit while you are playing, this is an indication that the gain (volume) controls and/or equalization controls are set in positions that are making the power amp overwork. Although the DDT™, in most cases, will prevent speaker damage and/or failure we recommend that the gain/equalization controls be readjusted until the DDT™ LED will illuminate only on extremely loud passages.

#### GROUND SWITCH

The ground switch is a three position rocker type which, in most applications, should be operated in its center or zero position. You may encounter some situations when audible hum and/or noise will come from the loudspeaker. If this situation arises, position the ground switch to either positive (+ or -) or until the noise is minimized. **NOTE:** Should the noise problem continue, consult your authorized Peavey dealer, the Peavey factory, or a qualified service technician. **DO NOT, UNDER ANY CIRCUMSTANCES, REMOVE THE GROUND PIN ON THE MAINS (POWER) CABLE!!!** THE GROUND SWITCH IS **NOT** FUNCTIONAL ON EXPORT MODELS.

#### ON/OFF SWITCH

The on/off power switch is a two position "rocker type" and should present no problem in operation. In the on position, a red LED indicator will illuminate showing that power is being supplied to the unit. **NOTE:** When the unit is turned on, the DDT™ compression LED may momentarily illuminate. Although we recommend that the gain controls (pre and post gain) should be at their zero position *before* the power switch is turned on, the actual lighting of the DDT™ LED, in this instance, should be considered normal.

## REAR PANEL

### PREAMP OUT/POWER AMP IN

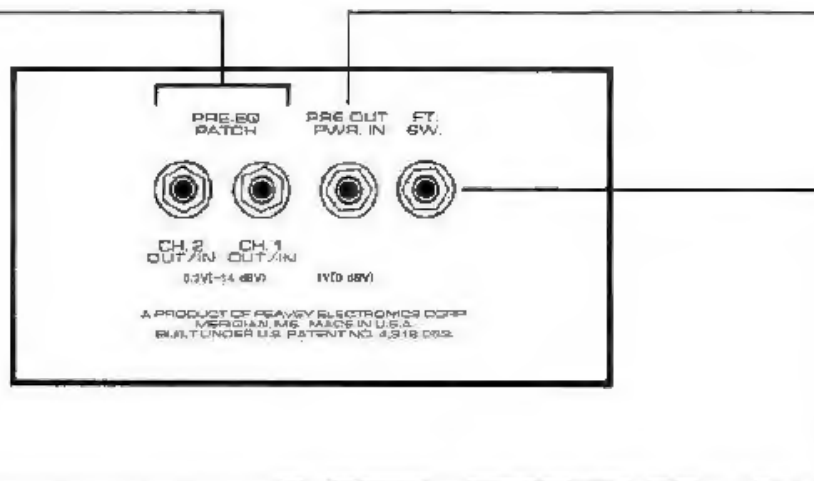
The Rhythm Master™ 400 features a "stereo" out/in jack to facilitate the use of various auxiliary units (chorus, flanging, tape/digital/analog delays, equalizers, etc.) "in-line". To utilize this unique system, a stereo plug (ring/tip/sleeve) to a "Y" cord must be used. The "tip" portion of the 1/4" stereo jack serves as the preamp send (output) while the "ring" portion will return the processed signal to the power amp. The "sleeve" portion serves as the ground.

Since this is a stereo jack configuration, the first "click" on the jack may be used as a preamp output with a mono 1/4" plug if desired. This first "click" will not disturb the signal flow to the remainder of the amp as it is fed into the power amp. NOTE: IF THE SECOND "CLICK" OF THE OUT/IN JACK IS UTILIZED WITHOUT RETURNING ANY SIGNAL TO THE CHANNEL FROM AN EFFECTS DEVICE THE AMPLIFIER WILL BE DISABLED.

### PRE EQ PATCH (Channel 1 & 2)

The Rhythm Master™ 400 features a "stereo" out/in jack on Channels 1 and 2 to facilitate the use of various auxiliary units (chorus, flanging, tape/digital/analog delays, equalizers, etc.) "in-line". To utilize this unique system, a stereo plug (ring/tip/sleeve) to a "Y" cord must be used. The "tip" portion of the 1/4" stereo jack serves as the channel send (output) while the "ring" portion will return the processed signal to the channel. The "sleeve" portion serves as the ground.

Since this is a stereo jack configuration, the first "click" on the jack may be used as a preamp output with a mono 1/4" plug if desired. This first "click" will not disturb the signal flow to the remainder of the amp as it is fed into the power amp. NOTE: IF THE SECOND "CLICK" OF THE OUT/IN JACK IS UTILIZED WITHOUT RETURNING ANY SIGNAL TO THE POWER AMP FROM AN EFFECTS DEVICE THE AMPLIFIER WILL BE DISABLED.



### FOOTSWITCH JACK

The 1/4" footswitch jack allows remote switching of the reverb system from the footswitch. The footswitch is a simple, single function unit that merely defeats or cancels the internal reverberation capability.

### LINE CORD

For your safety we have incorporated a three-wire line (mains) cable with proper grounding facilities. It is not advisable to remove the ground pin under any circumstances. If it is necessary to use the amp without proper grounding receptacles, a suitable grounding adaptor should be used. Extraneous noise and the probability of shock hazard is greatly reduced when the unit is operated with properly grounded receptacles.

## RHYTHM MASTER™ 400 SPECIFICATIONS

### SUMMARY OF FUNCTIONS:

Four channels in; two pre EQ patch (Channels 1 & 2 only); preamp out; Full Bright, three-band EQ and reverb send (each channel); master reverb and master level; reverb footswitch; 210 watt power amp with DDT™ Compression; one premium 4 ohm 15" Black Widow® speaker; and premium 3-spring reverb.

### PREAMP SECTION:

THE FOLLOWING PREAMP SPECS ARE MEASURED WITH ALL EQ FLAT AT 0 dB, PULL BRIGHT OFF (IN), MASTER LEVEL SET AT 10, MASTER REVERB SET AT 0; NOMINAL SIGNAL LEVELS ARE WITH CHANNEL LEVEL CONTROLS SET AT 5; MINIMUM LEVELS ARE WITH CHANNEL LEVEL CONTROLS SET AT 10.

### INSTRUMENT INPUTS:

Impedance: High Z, 220K ohms  
Nominal Input Level: -18 dBV, 120 mV RMS  
Minimum Input Level: -40 dBV, 10 mV RMS  
Maximum Input Level: +14 dBV, 5 V RMS

### PRE EQ PATCH OUTPUT: (Stereo Jack Tip)

Function: Low level effects send  
Load Impedance: 10K ohms or greater  
Nominal Output: -14 dBV, 0.2 V RMS

### PRE EQ PATCH INPUT: (Stereo Jack Ring)

Function: Low level effects return  
Impedance: High Z, 47K ohms  
Designed Input Level: -14 dBV, 0.2 V RMS  
(Switching stereo jack providing patch output to patch input connection when not used)

### PREAMP OUTPUT:

Function: High level post EQ signal send  
Load Impedance: 1K ohms or greater  
Nominal Output: 0 dBV, 1 V RMS  
Maximum Output: +18 dBV, 8 V RMS

### POWER AMP INPUT:

Function: High level post EQ signal return  
Impedance: High Z, 22K ohms  
Designed Input Level: 0 dBV, 1 V RMS  
(Switching jack providing preamp output to power amp input connection when not used)

### REMOTE FOOTSWITCH:

Function: Reverb defeat

THE FOLLOWING SPECS MEASURED AT NOMINAL SETTINGS. ALL CHANNEL INPUTS TERMINATED WITH 47K OHMS.

### FREQUENCY RESPONSE:

(Channel in/preamp out with 1 V RMS Output)  
+0, -2 dB, 40 Hz to 20 KHz

### PREAMP HUM & NOISE:

-75 dBV (All 4 channels operational)

### SYSTEM DISTORTION:

(Channel in/preamp out, 40 Hz - 20 KHz at 1 V RMS)  
Less than .05% THD, typically below .01%

### EQUALIZATION:

+15 dB at 80 Hz and 8 KHz, Shelving  
+15 dB at 600 Hz, Peak/Notch

### PULL BRIGHT:

+6 dB at 2 KHz

### POWER AMPLIFIER SECTION:

#### RATED POWER & LOAD:

210 W RMS into 4 ohms with DDT™ Compression and LED Indicator

#### POWER AND CLIPPING:

(Typically at 5% THD, 1 KHz, 120 VAC Line)  
130 W RMS into 8 ohms  
220 W RMS into 4 ohms  
2 ohms NOT recommended

#### FREQUENCY RESPONSE:

+0, -1 dB 20 Hz to 20 KHz at 200 W RMS into 4 ohms

#### TOTAL HARMONIC DISTORTION:

Less than 0.2%, 100 mW to 200 W RMS, 20 Hz to 10 KHz, 4 ohms, typically below 0.1%

#### DDT™ DYNAMIC RANGE:

Greater than 20 dB

#### DDT™ MAXIMUM THD:

Less than 0.5% THD for 6 dB overload  
Less than 1% THD for 20 dB overload

#### HUM AND NOISE:

Greater than 95 dB below rated power

#### POWER CONSUMPTION: (Domestic)

600 watts, 50/60 Hz, 120 VAC

### AMP CAUTIONS DANGER

EXPOSURE TO EXTREMELY HIGH NOISE LEVELS MAY CAUSE A PERMANENT HEARING LOSS. INDIVIDUALS VARY CONSIDERABLY IN SUSCEPTIBILITY TO NOISE INDUCED HEARING LOSS, BUT NEARLY EVERYONE WILL LOSE SOME HEARING IF EXPOSED TO SUFFICIENTLY INTENSE NOISE FOR A SUFFICIENT TIME. THE U.S. GOVERNMENT'S OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) HAS SPECIFIED THE FOLLOWING PERMISSIBLE NOISE LEVEL EXPOSURES:

DURATION PER DAY IN HOURS

8  
6  
4  
3  
2  
1½  
1  
½  
¼ or less

SOUND LEVEL dBA, SLOW RESPONSE

90  
92  
95  
97  
100  
102  
105  
110  
115

ACCORDING TO OSHA, ANY EXPOSURE IN EXCESS OF THE ABOVE PERMISSIBLE LIMITS COULD RESULT IN SOME HEARING LOSS.

EAR PLUGS OR PROTECTORS IN THE EAR CANALS OR OVER THE EARS MUST BE WORN WHEN OPERATING THIS AMPLIFICATION SYSTEM IN ORDER TO PREVENT A PERMANENT HEARING LOSS IF EXPOSURE IS IN EXCESS OF THE LIMITS AS SET FORTH ABOVE. TO INSURE AGAINST POTENTIALLY DANGEROUS EXPOSURE TO HIGH SOUND PRESSURE LEVELS, IT IS RECOMMENDED THAT ALL PERSONS EXPOSED TO EQUIPMENT CAPABLE OF PRODUCING HIGH SOUND PRESSURE LEVELS SUCH AS THIS AMPLIFICATION SYSTEM BE PROTECTED BY HEARING PROTECTORS WHILE THIS UNIT IS IN OPERATION.

### CAUTION

THIS AMPLIFIER HAS BEEN DESIGNED AND CONSTRUCTED TO PROVIDE ADEQUATE POWER RESERVE FOR PLAYING MODERN MUSIC WHICH MAY REQUIRE OCCASIONAL PEAK POWER TO HANDLE OCCASIONAL PEAK POWER. ADEQUATE POWER "HEADROOM" HAS BEEN DESIGNED INTO THIS SYSTEM. EXTENDED OPERATION AT ABSOLUTE MAXIMUM POWER LEVELS IS NOT RECOMMENDED SINCE THIS COULD DAMAGE THE ASSOCIATED LOUDSPEAKER SYSTEM. PLEASE BE AWARE THAT MAXIMUM POWER CAN BE OBTAINED WITH VERY LOW SETTINGS OF THE GAIN CONTROLS IF THE INPUT SIGNAL IS VERY STRONG.

Due to our efforts for constant improvement, features and specifications listed herein are subject to change without notice.



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